

ABSTRACT OF THE DISCLOSURE

The upper portion of a magnetoresistive film is interposed between insulators in the lateral direction of a recording track in a current-perpendicular-to-the-plane structure magnetoresistive element. Domain control magnetic layers sandwich the upper portion of the magnetoresistive film along with the insulators in the lateral direction. The insulators serve to establish a narrower path for electric current between the lower portion of the magnetoresistive film and an upper electrode layer. The substantial width in the lateral direction can thus be reduced in the magnetoresistive film. In addition, a longitudinal biasing magnetic field established between the domain control magnetic layers efficiently acts on the magnetoresistive film. In particular, if a free magnetic layer is included in the upper portion of the magnetoresistive film, the free magnetic layer can be subjected to a larger longitudinal biasing magnetic field. A single domain property can be realized in the free ferromagnetic layer enough. The Barkhausen noise can be reduced.

10027651.122001